

# **Blowtorch**

## **Field of Invention**

The present invention relates to a blowtorch.

## **Background of Invention**

Referring to Figure 11, a conventional blowtorch 90 includes a reservoir 91 for storing gas, a valve 92 for controlling the flow rate of the gas from the reservoir 91, a nozzle 93 for spraying the gas from the valve 92 and an igniter 94 for igniting the gas sprayed from the nozzle 93. The valve 92 includes a knob 95 operable in order to adjust the flow rate of the gas through the valve 92. The igniter 94 includes a button 96 operable so as to actuate the igniter 94 to produce a spark in order to ignite the gas sprayed from the nozzle 93. When not using the blowtorch 90, a user is required to shut down the valve 92. However, it is difficult to shut down the valve 92 completely. Leakage of the gas from the reservoir 91 is therefore inevitable. Sometimes, the user even forgets to shut down the valve 92. In both cases, the user may push the button 96 by accident, and this could incur a disaster.

The present invention is therefore intended to obviate or at least alleviate the problems encountered in prior art.

## **Summary of Invention**

It is the primary objective of the present invention to provide a blowtorch with a secure valve.

1 According to the present invention, a blowtorch includes a reservoir for  
2 storing gas, a valve for controlling the flow of the gas from the reservoir,  
3 a nozzle for spraying the gas from the valve, an igniter for igniting the gas  
4 sprayed from the nozzle, a handle device for controlling the valve and the  
5 igniter and a security device for keeping the handle device in check.

6

7 Other objects, advantages and novel features of the invention will become  
8 more apparent from the following detailed description in conjunction  
9 with the drawings.

10

#### 11 **Brief Description of Drawings**

12 The present invention will be described via detailed illustration of the  
13 preferred embodiment referring to the drawings.

14

15 Figure 1 is a perspective view of a blowtorch including a reservoir, a  
16 valve, a nozzle, an igniter and a handle device according to the preferred  
17 embodiment of the present invention.

18

19 Figure 2 is an exploded view of the handle device of the blowtorch of  
20 Figure 1.

21

22 Figure 3 is a rear view of a knob of the handle device of Figure 2.

23

24 Figure 4 is a cross-sectional view taken along a line 4-4 in Figure 3.

25

26 Figure 5 is a cross-sectional view taken along a line 5-5 in Figure 3.

Figure 6 is similar to Figure 1 but shows the handle device in another position.

Figure 7 is a top view of the blowtorch of Figure 6.

Figure 8 is a cross-sectional view taken along a line 8-8 in Figure 7.

Figure 9 is similar to Figure 6 but shows the handle device in another position.

Figure 10 is a cross-sectional view taken along a line 10-10 in Figure 9.

Figure 11 is a perspective view of a conventional blowtorch.

### **Detailed Description of Preferred Embodiment**

Referring to Figures 1 and 2, a blowtorch 1 according to the preferred embodiment of the present invention is shown. The blowtorch 1 includes a reservoir 10 for storing gas, a valve 20 for controlling the flow of the gas from the reservoir 10, a nozzle 30 for spraying the gas from the valve 20, an igniter 60 for igniting the gas sprayed from the nozzle 30, a handle device 40 for controlling the valve 20 and the igniter 60 and a security device 50 for keeping the handle device 40 in check.

The reservoir 10, the nozzle 30 and the igniter 60 will not be described in detail for being conventional.

1 The valve 20 includes a housing 21 through which the reservoir 10 is  
2 communicated with the nozzle 30. The valve 20 further includes a  
3 switching device and an adjusting device. The switching device  
4 includes a pusher 24 extending from the housing 21. The pusher 24 can  
5 be moved so as to switch the valve 20 between a communicating mode  
6 and a blocking mode. The adjusting device includes a driver 41  
7 extending from the housing 21. The driver 41 can be rotated so as to  
8 adjust the flow rate of the gas through the valve 20. The valve 20 will  
9 not be described in detail for not being the spirit of the present invention.

10

11 The handle device 40 is provided for driving the pusher 24, the driver 41  
12 and the igniter 60. The handle device 40 includes an internal button 43  
13 for pushing the pusher 24 and the igniter 60. Furthermore, the handle  
14 device 40 includes a knob 42 for driving the driver 41.

15

16 The internal button 43 includes a ring 44, a cylinder 45 extending from a  
17 side of the ring 44, two rods 46 extending from an opposite side of the  
18 ring 44 and two tubes 47 each extending from corresponding one of the  
19 rods 46. The rods 46 are wide compared with the tubes 47 so that a  
20 portion of the free end of each rod 46 is exposed from the corresponding  
21 tube 47.

22

23 In assembly, the internal button 43 is put around the driver 41. With  
24 reference to Figure 7, the cylinder 49 is in contact with the pusher 24 and  
25 the igniter 40.

26

1 Referring to Figures 2-5, the knob 42 includes a hub 48, a cylinder 49 and  
2 a ring 54 formed between the hub 48 and the cylinder 49. The hub 48  
3 includes an internal side compliant with the profile of the free end of the  
4 driver 41. Thus, the hub 48 cannot be rotated around the end of the  
5 driver 41 when the hub 48 is put around the end of the driver 41. The  
6 ring 54 includes a rear face 56 for contact with the rods 46. Two slots  
7 58 are defined in the ring 54. Two recesses 61 are cut into the rear face  
8 56 of the ring 54. Each of the recesses 61 is communicated with  
9 corresponding one of the slots 58. Each of the recesses 61 includes a  
10 rear face 62 for contact with the free end of corresponding one of the rods  
11 46.

12  
13 In assembly, the hub 48 is put around the driver 41. The rods 46 are put  
14 in the recesses 61. The ends of the rods 46 abut the rear faces 62 of the  
15 recesses 61. The tubes 47 extend beyond the slots 58. A screw 64 is  
16 driven into the driver 41 through the collar 48 and the ring 44. Thus, the  
17 knob 42 and the internal button 43 are secured to the driver 41.

18  
19 The security device 50 includes an external button 51 connected with the  
20 internal button 43 in the knob 42 and a lock 52 for locking the external  
21 button 51 to the knob 42.

22  
23 The external button 51 includes a disc 66, a cylinder 68 extending from  
24 the disc 66 and two inserts 70 extending from the cylinder 68. The disc  
25 66 defines a slot 72. The cylinder 68 defines an aperture 74.

1 The lock 52 includes a head 76. An indication such as an arrowhead is  
2 marked, formed or cut in a side of the head. The indication is used to  
3 indicate the flow rate of the gas through the valve 20. A body 78  
4 extends from an opposite side of the head 76. Furthermore, the lock 52  
5 includes a stem 80 extending from a side of the body 78 and a latch 82  
6 extending from an opposite side of the body 78.

7  
8 In assembly, the stem 80 and the latch 82 are inserted through the slot 72.  
9 The latch 82 is inserted through the aperture 74. A spring 84 is put  
10 around the stem 80. The spring 84 is compressed between the body 78  
11 and an internal side of the cylinder 68. The cylinder 68 of the external  
12 button 51 is put in the cylinder 49 of the knob 42. The inserts 70 of the  
13 external button 51 are inserted into the tubes 47 of the internal button 43.

14  
15 Referring to Figures 6-8, biased by means of the spring 84, the latch 82  
16 extends from the aperture 74. The latch 82 abuts the knob 42 so as to  
17 prevent the movement of the external button 51 relative to the knob 42.  
18 The internal button 43 cannot be pushed by means of the external button  
19 51. The pusher 24 and the igniter 40 cannot be pushed by means of the  
20 internal button 43. Therefore, the valve 20 cannot be moved to the  
21 communicating mode. However, the knob 42 can be rotated in order to  
22 drive the driver 41.

23  
24 Referring to Figures 9 and 10, the latch 82 is pushed into the aperture 74  
25 in order to allow the movement of the external button 51 relative to the  
26 knob 42. The internal button 43 can be pushed by means of the external

1 button 51. The pusher 24 and the igniter 40 can be pushed by means of  
2 the internal button 43. Therefore, the valve 20 can be moved to the  
3 communicating mode.

4  
5 Once the external button 51 is pushed relative to the knob 42, the tips of  
6 the rods 46 are moved from the rear faces 62 of the recesses 61. When  
7 the external button 51 is pushed to the limit, the rods 46 are completely  
8 moved from the recesses 61. Thus, the internal button 43 and the  
9 external button 51 are rotated relative to the knob 42 as the tubes 47 that  
10 receive the inserts 70 are moved in the slots 58. When the rods 46 are  
11 not aligned with the recesses 61, the external button 51 is released. The  
12 internal button 43 is released accordingly. The tips of the rods 46 abut  
13 the rear face 56 of the ring 44. The internal button 43 is retained in the  
14 pressed position. Therefore, the valve 20 is retained in the  
15 communicating mode.

16  
17 The present invention has been described via detailed illustration of the  
18 preferred embodiment. Those skilled in the art can derive variations  
19 from the preferred embodiment without departing from the scope of the  
20 present invention. Therefore, the preferred embodiment shall not limit  
21 the scope of the present invention defined in the claims.